

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: FRENCH POND	Lake Area (ha): 16.79
Town: HENNIKER	Maximum depth (m): 11.8
County: Merrimack	Mean depth (m): 4.3
River Basin: Merrimack	Volume (m ³): 727500
Latitude: 43°11'32" N	Relative depth: 2.6
Longitude: 71°46'36" W	Shore configuration: 1.10
Elevation (ft): 543	Areal water load (m/yr): 5.35
Shore length (m): 1600	Flushing rate (yr ⁻¹): 1.20
Watershed area (ha): 196.7	P retention coeff.: 0.65
% watershed ponded: 0.0	Lake type: natural

BIOLOGICAL:

		15 January 1998	15 July 1997
DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 70%	CERATIUM 55%
	#2	SYNEDRA 20%	FILAM. BL-GR SPP. 15%
	#3		DINOBRYON 10%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			11.16
DOM. ZOOPLANKTON (% TOTAL)	#1	FILINIA 36%	DAPHNIA 40%
	#2	KERATELLA 19%	CALANOID COPEPOD 24%
	#3	KELLICOTTIA 14%	CYCLOPOID COPEPOD 18%
ROTIFERS/LITER		573	4
MICROCRUSTACEA/LITER		23	61
ZOOPLANKTON ABUNDANCE (#/L)		643	67
VASCULAR PLANT ABUNDANCE			Common
SECCHI DISK TRANSPARENCY (m)			2.8
BOTTOM DISSOLVED OXYGEN (mg/L)		5.8	0.1
BACTERIA (E. coli, #/100 ml)	#1		14
	#2		9
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 4.0
Hypolimnion volume (m³): 79250
Anoxic volume (m³): 79250

CHEMICAL:

Lake: FRENCH POND

Town: HENNIKER

	15 January 1998		15 July 1997		
DEPTH (m)	4.0	8.0	1.0	4.5	10.5
pH (units)	6.8	6.4	7.3	7.3	6.5
A.N.C. (Alkalinity)	10.1	8.8	7.6	8.6	21.0
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.50	0.50	0.40	0.50	2.20
TOTAL PHOSPHORUS	0.025	0.023	0.016	0.030	0.159
CONDUCTIVITY (μ mhos/cm)	82.1	85.1	75.0	73.4	87.5
APPARENT COLOR (cpu)	28	30	13	24	38
MAGNESIUM			1.00		
CALCIUM			4.1		
SODIUM			8.7		
POTASSIUM			1.40		
CHLORIDE	14	14	13		13
SULFATE	6	6	5		2
TN : TP	20	22	25		14
CALCITE SATURATION INDEX			2.5		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1997

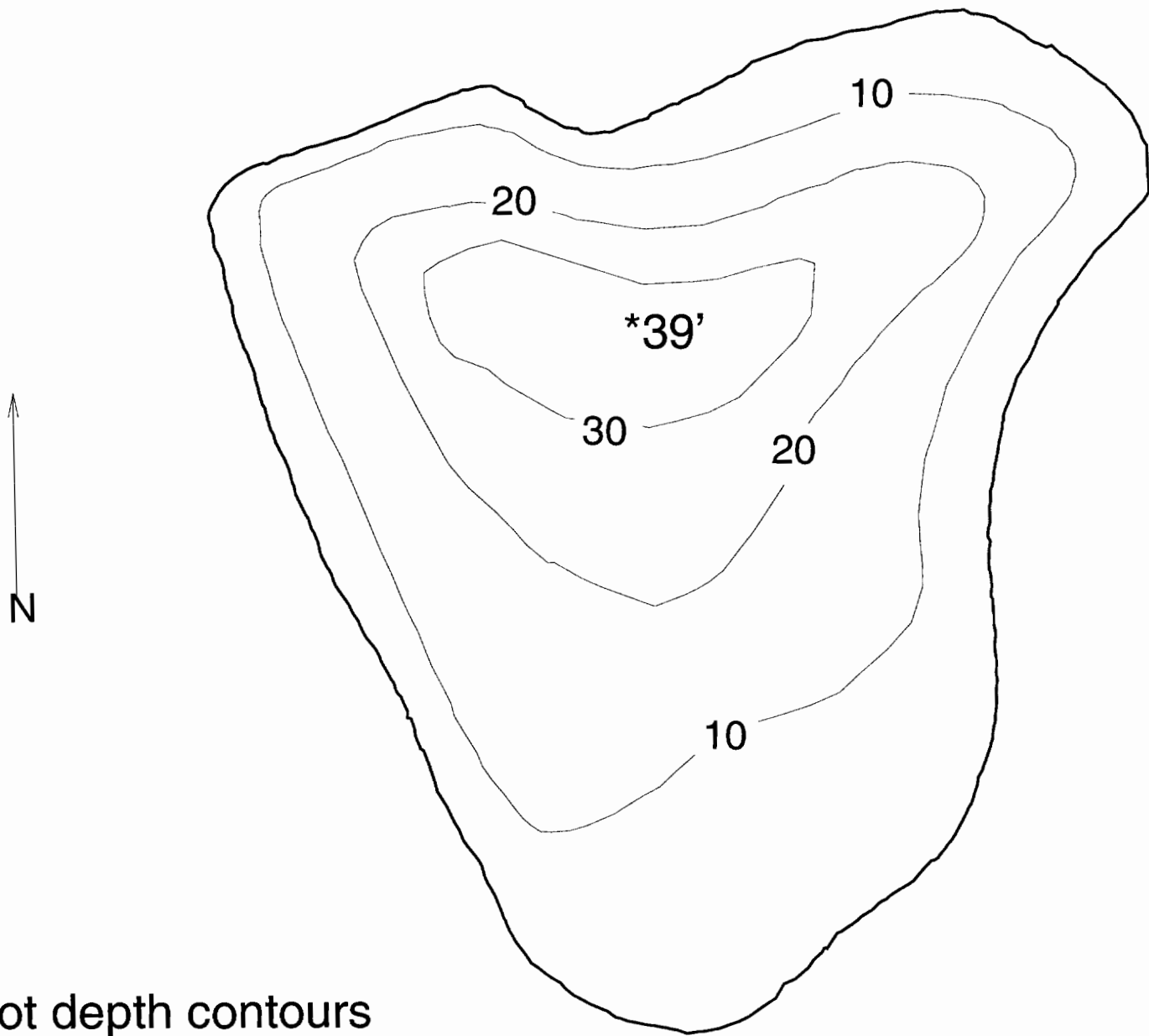
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
6	3	3	2	14	Eutro.

COMMENTS:

1. This pond was previously surveyed and classified in 1979. There was no change in trophic class and little change in water quality over the 18 years.
2. French Pond has been in the Volunteer Lake Assessment Program since 1989. Trophic quality has remained relatively stable over the 8 years of monitoring.
3. This is a productive (eutrophic) pond with no hypolimnetic dissolved oxygen and internal recycling of phosphorus (note the elevated phosphorus concentration in the bottom waters).
4. Blue-green algae were common during the summer. Interestingly, zooplankton were more abundant during the winter than the summer, and rotifers dominated the winter zooplankton while crustaceans dominated the summer plankton.

French Pond

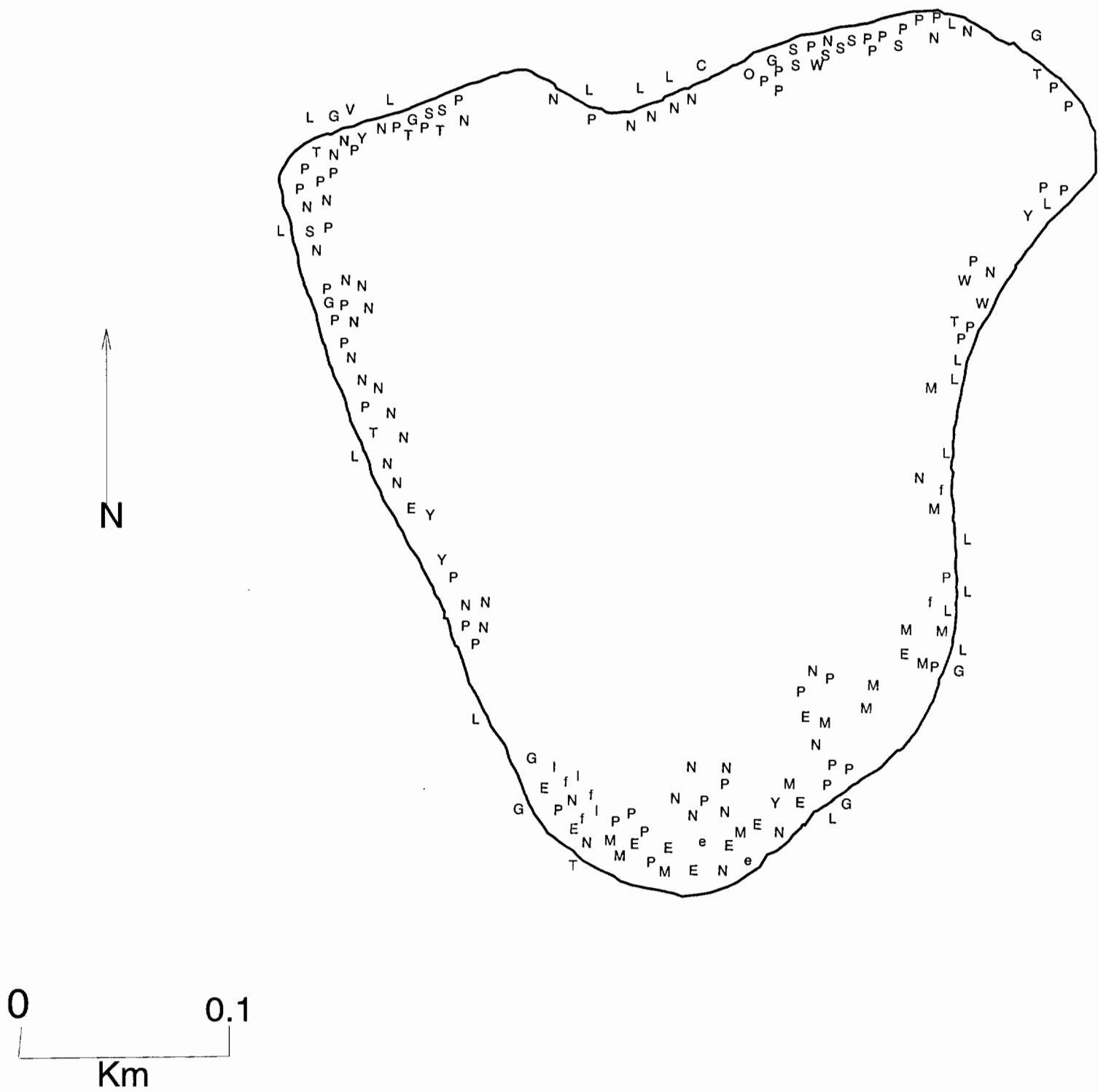
Henniker



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French Pond

Henniker



AQUATIC PLANT SURVEY			
LAKE: FRENCH POND		TOWN: HENNIKER	DATE: 07/15/97
Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
f		Filamentous algae	Scattered
O	Cephalanthus occidentalis	Buttonbush	Sparse
P	Pontederia cordata	Pickerelweed	Common
G	Gramineae	Grass family	Scattered
S	Sparganium	Bur reed	Sparse
N	Nymphaea	White water lily	Scat/Common
C	Carex	Sedge	Sparse
L	Lysimachia terrestris	Swampcandle	Scattered
T	Typha	Cattail	Sparse
Y	Nuphar	Yellow water lily	Scattered
V	Vaccinium corymbosum	High-bush blueberry	Sparse
E	Eriocaulon septangulare	Pipewort	Scattered
M	Myriophyllum humile	Water milfoil	Scat/Common
I	Nitella	Stonewort, Muskgrass	Sparse
e	Elatine	Waterwort	Sparse
W	Potamogeton natans	Floating-leaf pondweed	Sparse
OVERALL ABUNDANCE: Common			
GENERAL OBSERVATIONS:			
1. Plant growth was tight to the shore around most of the pond, due to a steep drop off in depth. Plants were more abundant at the southern end due to shallow depths.			
2. A loon, great blue heron and family of ducks were observed.			